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# QUALITY ASSURANCE RESOURCE MODEL USER'S GUIDE

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May 1993

OPERATIONS RESEARCH OFFICE



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# **QUALITY ASSURANCE RESOURCE MODEL USER'S GUIDE**

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**May 1993**

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## SECTION 1 OVERVIEW

There are two parts to implementing the Quality Assurance Resource Model (QUARM) equations developed by the Defense Logistics Agency (DLA) Operations Research Office (DORO) in project DLA-92-P90124. The first extracts the required data from three data systems in the appropriate format. The second part downloads this data and incorporates it into a spreadsheet. The first part will be done monthly at DLA Headquarters, transparent to the user. To accomplish the second step, the user simply downloads the file from the Distributed Mini System (DMINS), then invokes an Enable system macro that automatically incorporates this data into a spreadsheet. Enable version 4.0 is the software used for both the macro and the spreadsheet.

To create the spreadsheet containing QUARM requires little effort on the part of the user. The user downloads an ASCII file from DMINS that contains the data required for QUARM using the menu driven download procedure. Then the user invokes the Enable macro that automatically generates the final spreadsheet.

SECTION 2  
THE DATA EXTRACTION PROCESS

The files used for the data extraction are located on DLA Headquarter's minicomputer. The data in these files comes from three sources: the Quality Assurance (QA) Management Information System (MIS), the Quality Evaluation and Sensing Technique (QUEST), and the Defense Business Management Systems (DBMS) (formerly the Automated Payroll Cost and Personnel System (APCAPS)). The files for the two QA databases are not the same as those on the mainframe systems, but are in fact downloads of specific parts of those databases. The Unit Cost DBMS hourly data is obtained by querying the Management Analysis Statistical System (MASS).

A program on the DLA Headquarter's minicomputer, written by DLA Operations Research Office, Chicago (DORO-C) in the C programming language, accesses the data files, extracts and sorts the appropriate data, then outputs a comma delimited ASCII file. This program will be run monthly and the file transmitted to each District's DMINS. The unique output file name for each District will have the following format: 'QI', a unique letter identifying the District and a TXT extension. The unique letters for each District, for this text file and the other files associated with this program, are in Table 2-1.

*Table 2.1. District Identifying Letter*

<u>District</u>	<u>Headquarters City</u>	<u>Identifier</u>
DCMDS	Atlanta	A
DCMDN	Boston	B
DCMDC	Chicago	C
DCMDW	Los Angeles	L
DCMDM	Philadelphia	P

For example, the text (output) file for DCMDS is QIA.TXT.

The user then downloads a District's file from DMINS using the menu driven download procedure. The same file name (e.g., QIA.TXT for DCMDS) must also be the name for the file on the PC after it has been downloaded. It is important to download this file to the directory that Enable accesses for spreadsheet files. **CAUTION:** If the name (e.g., QIA.TXT for DCMDS) and path (the directory Enable normally accesses for spreadsheet files) of the downloaded file are not correct, the Enable system macro will not work properly.

### SECTION 3 THE ENABLE MACRO

After the ASCII file has been downloaded to the user's personal computer (PC), the user then runs the Enable 4.0 system macro. The macro is started from the top line menu of Enable 4.0. Enter Enable 4.0 by selecting 'Main Menu' or press the 'End' key on the first screen after getting into Enable. The options on this top-line menu are: Use System, Print, Files, MCM, Tools, Help, and Return. Instead of selecting any of these options, the user will invoke the macro by pressing ALT and F9 simultaneously, then the identifying letter shown in Table 2.1. It is not necessary that this letter be capitalized. **CAUTION:** The macro must be started from this point in Enable 4.0. Since the macro emulates keystrokes, if started from anywhere else within Enable, the macro will not work properly.

The Enable macro performs several functions transparent to the user. The first function of the macro is to import the ASCII file downloaded from DMINS into an Enable spreadsheet. This file is then saved as an Enable file. The macro names this file the same as the output text file in Section 2, but replaces the TXT extension with SSF. For example the DCMDS file in Enable format would now be named QIA.SSF.

The next function of the macro is to combine the newly saved Enable spreadsheet (containing the current QUARM data downloaded from DMINS) with a template spreadsheet. This template contains Secondary Level Field Activity (SLFA) names and the appropriate QUARM formulas. This combined spreadsheet created by the macro now contains current QUARM data and results for all the SLFAs in a particular District. The macro then saves this combined spreadsheet with a file name that adds a 'C' (for Combined file) to the output file name (the one saved in Enable format with an SSF extension). For example, the original ASCII file for DCMDS was named QIA.TXT, the combined file is named QIAC.SSF.

The last function performed within the macro appends the combined spreadsheet to another with 6 previous months worth of QUARM data. The file name for this spreadsheet (the end product for the user) is: the identifier in Table 2.1, 'QUARM' and an SSF extension. For example, the DCMDS spreadsheet is named AQUARM.SSF. The last operation the macro does is to invoke a cell macro which updates the spreadsheet to include only the most recent 6 months of data. This cell macro erases the oldest of the 6 months worth of data on this spreadsheet, moves the remaining data, and updates the 6 month average. The end

product, then is a spreadsheet that displays the 6 month QUARM averages, the 6 month averages of the data used by QUARM, as well as the last 6 individual months of data.

#### SECTION 4 SPREADSHEET MAINTENANCE

After the macro produces the final spreadsheet, three intermediate files must be deleted before the next month's data is added to the spreadsheet. These are the original text file, the text file saved in Enable format, and the combined file. For example, the files to be erased for DCMDS would be: QIA.TXT, QIA.SSF, and QIAC.SSF. These need to be erased to eliminate the possibility that overlaying files with the same name could contaminate the data.

Another aspect of maintaining the spreadsheet is that it is essential that the macro must be run each month. The C program extracting data from the DMINS files overlays the same output files for each District month after month. This data will be lost if not downloaded and incorporated into the spreadsheet each month.

By the same token, care should be taken to assure that new QUARM data has been extracted before downloading and running the macro. One way to assure this would be to rename the ASCII comma delimited file (e.g., QIA.TXT for DCMDS) on the DMINS after downloading. This file could be deleted when it is determined it will no longer be needed. This way the user will know the DMINS file under the appropriate TXT file name is the new (current month's) data.

As previously mentioned, the final spreadsheet contains 6 months of the data used for QUARM and the 6 month average of that data. To retain any more than these 6 months data, the user should save the final spreadsheet to another name. If the only interest is to retain the monthly data, it would only be necessary to save the spreadsheet every 6 months. If the intent is to retain the 6 month average for each month, the user must save the spreadsheet each month.

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13. ABSTRACT (Maximum 200 words)  The QUARM equations use regression analysis to identify and quantify logical workload indicators that have statistically valid correlations with the corresponding workload. This project implements these equations by extracting the necessary data from three databases on the DLA minicomputer and using this data to automatically create a spreadsheet. The user is only required to download an ASCII file from the Distributed Mini System (DMINS) and invoke an Enable 4.0 macro to generate the spreadsheet containing six month average QUARM results. Now QUARM can be used for its intended purpose: to provide a uniform, analytical approach (along with other analyses or field reviews) to balance QA resources.				
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